



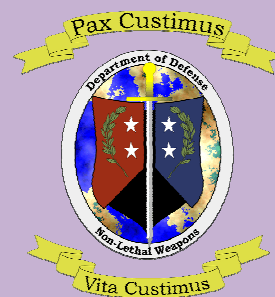
JNLWP

**Second Quarter
Fiscal Year 2009**



Joint Non-Lethal Weapons Program Newsletter

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Non-Lethal Weapons in Irregular Warfare



Non-lethal weapons can play a critical role in unconventional warfare, where distinguishing between adversaries and innocent civilians is sometimes nearly impossible.

U.S. Navy photo by Petty Officer 2nd Class James Wagner

There's no denying the changing landscape of warfare. More and more, the emergence of non-state groups is making conventional warfare less common. Several new Department of Defense (DoD) publications indicate how the DoD is gradually integrating these changes into its culture. As warfare transforms, non-lethal weapons (NLWs) can play an increasingly important role in helping the U.S. achieve its goals abroad.

In November 2008, U.S. Joint Forces Command published "The Joint Operating Environment 2008: Challenges and Implications for the Future Joint Force" (JOE). The 50-page document outlines global trends and factors that will alter the way U.S. forces operate over the next 25 years. In December 2008, the DoD issued DoD Directive 3000.07, establishing a policy for irregular warfare. Also in December, U.S. Secretary of Defense Robert Gates authored an article in *Foreign Affairs* magazine entitled, "A Balanced

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CALENDAR OF EVENTS

28 April: Joint Coordination & Integration Group Meeting
11-13 May: 5th European NLW Symposium
12-13 May: Navy NLW Integrated Concept Team Meeting
19 May: Joint Integrated Product Team Meeting
22 May: Joint Integration Program Meeting
4 June: Human Effects Review Board Meeting



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Non-Lethal Weapons in Irregular Warfare *(continued from page 1)*

Strategy: Reprogramming the Pentagon for a New Age.” All these publications reflect how the international environment is changing the DoD’s mindset and strategy on warfare.

So, how do non-lethal weapons come into play as warfare changes? All three documents stress how asymmetric warfare will increasingly bring combat into crowded urban areas. Urban warfare greatly increases the possibility of civilian casualties. The documents also emphasize that winning conflicts will be as much about diplomacy and securing the support of local populations as about combat. DoD Directive 3000.07 recognizes that irregular warfare “is as strategically important as traditional warfare” and stability operations are to “be given priority comparable to combat operations.”

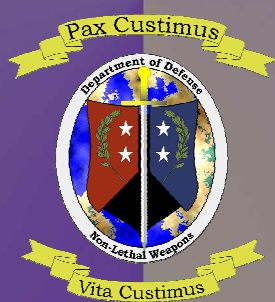
According to the JOE, “... operations in urban terrain will confront joint force commanders with a number of conundrums. The very density of building and population will inhibit the use of kinetic means, given the potential for collateral damage as well as large numbers of civilian casualties. Such inhibitions could increase U.S. casualties. On the other hand, any collateral damage carries with it difficulties in winning the ‘battle of the narrative,’ ” or the effort to win a battle politically and socially. Many urban situations make distinguishing between adversaries and innocent civilians nearly impossible. In these situations, NLWs can enable warfighters to discern intent, discriminate targets and non-lethally delay and deter potentially dangerous individuals. NLWs can help warfighters accomplish their missions while minimizing unnecessary fatalities and collateral damage.

The new DoD documents also note that the military will continue to engage in humanitarian and disaster relief operations. According to the JOE, “Urban operations will inevitably require the balancing of the disruptive and destructive military operations with the requirements of humanitarian, security, and relief and reconstruction operations. What may be militarily effective may also create the potential for large civilian casualties, which in turn would most probably result in a political disaster, especially given the ubiquitous presence of the media.” NLWs can play a critical role in these situations. They can assist military service members in safely managing crowds in areas where local civilians need food and water relief to survive. NLWs can provide additional tools to handle challenging situations where lethal force is not a viable option.

These are just a few examples of how NLWs can help fill critical capability gaps as irregular warfare becomes more and more prevalent. “Non-lethal weapons can provide essential capabilities in situations where reducing civilian casualties and unnecessary damage to property is crucial to mission success,” commented Colonel Kirk Hymes, Director of the Joint Non-Lethal Weapons Directorate. “As the DoD continues to adjust its strategies to meet the changing global environment, new non-lethal technologies will become even more important in helping the U.S. achieve its military objectives.”

As Secretary Gates notes in his “Balanced Strategy” article, “What is dubbed the war on terror is, in grim reality, a prolonged, worldwide irregular campaign—a struggle between the forces of violent extremism and those of moderation. Direct military force will continue to play a role in the long-term effort against terrorists and other extremists. But over the long term, the United States cannot kill or capture its way to victory.” As the shift from conventional to irregular warfare escalates, the U.S. will continue to modernize its approach to international conflict. Non-lethal weapons can help the U.S. meet these changing demands and succeed on the international stage.

—BY NANCY KOREEN



JNLWP Training Days Draw Participants from Around the World

The Joint Non-Lethal Weapons Directorate (JNLWD) hosted the annual Joint Non-Lethal Weapons Program (JNLWP) Training Days event on November 13-14, 2008, in Quantico, Va.



A participant at JNLWP Training Days fires non-lethal foam rubber baton rounds from an M-203 40mm Grenade Launcher during the familiarization firing.

*U.S. Marine Corps photo
by Cpl. Travis J. Crewdson*

JNLWP Training Days offer an introduction and overview of the non-lethal weapons (NLW) program to a variety of government, military and contractor personnel who recently joined the JNLWP. Approximately 68 people attended, including several who traveled from overseas.

The first day of training included a full day of classroom instruction. Lieutenant Commander Glenn Galman, U.S. Coast Guard Liaison Officer assigned to the JNLWD, provided the opening remarks. Throughout the day, participants were briefed on the JNLWP's roles and responsibilities in business and financial management, strategic communication, operations, acquisition, policy and

strategy, capabilities and requirements, technology, and human effects. Participants also received an overview of the responsibilities of Service-specific NLW Central Action Officers and Program Support Officers.

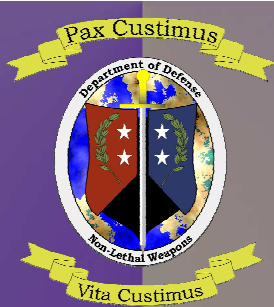
At the end of the day, Colonel Kirk Hymes, Director of the JNLWD, provided closing remarks and thanked everyone for their participation in the NLW program. He also expressed his belief in the JNLWD's mission to facilitate outfitting warfighters with operationally effective and suitable non-lethal weapons. "Our warfighters face a critical gap between shouting and shooting," said Col. Hymes. "In many operational situations, shouting is inadequate, but escalating to a lethal response is not an appropriate or desired first response."

On the second day of training, participants met at a range on U.S. Marine Corps Base Quantico for some hands-on experience firing NLWs. Major William McMillan, U.S. Army Officer assigned to the JNLWD, gave everyone a range safety brief prior to firing the NLWs. Participants then fired a variety of non-lethal munitions, including fin-stabilized munitions from a 12-gauge shotgun, foam rubber baton rounds from an M-203 40mm Grenade Launcher and paint marking rounds from an FN-303 Less-Lethal Launcher. Maj. McMillan demonstrated shooting non-lethal rubber sting-ball grenades out of a launch cup attached to a Mossberg 500 pump-action shotgun. Participants also had a chance to throw non-lethal rubber sting-ball grenades downrange. All the weapons included in the morning's familiarization firing are currently fielded for military use.

"The JNLWD really looks forward to hosting the annual training event," said Pam King, JNLWD Meeting Coordinator. "It's an opportunity for folks new to the JNLWP to experience firing the NLWs and to learn about current and future projects."

The JNLWD has scheduled its next JNLWP Training Days event for August 26-27.

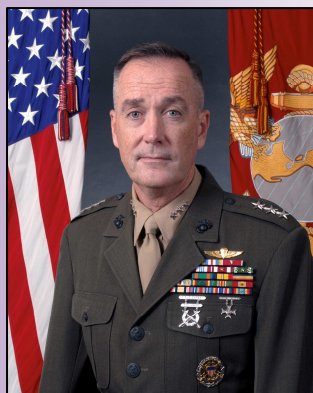
—BY JENNIFER BOWEN



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Joint Integrated Product Team Meets at the Pentagon

The Joint Non-Lethal Weapons Program (JNLWP) Joint Integrated Product Team (JIPT) met November 20, 2008, at the Pentagon in Arlington, Va. The JIPT meets semi-annually for Flag-level officers to discuss and make decisions on non-lethal weapons (NLW) programs.



JIPT chairman
Lieutenant General
Joseph F. Dunford,
Jr., USMC
Official DoD Photo

The JIPT includes Flag-level officers from each of the Services, U.S. Special Operations Command and the U.S. Coast Guard, who are the JIPT's voting principals on all major NLW issues. The JIPT also includes non-voting principals from the Office of Secretary of Defense, Joint Staff, Department of State, Department of Energy, Department of Justice, Department of Homeland Security and the National Guard. The Deputy Commandant of Plans, Policies and Operations at Headquarters U.S. Marine Corps (USMC), Lieutenant General Joseph F. Dunford, Jr., chairs JIPT meetings. Forty-five participants attended the November meeting.

The meeting's agenda included proposed JIPT charter modifications, Active Denial Technology discussion, proposed modifications to the Optical Warning, Distraction and Suppression (OWDS) and Long-Range Human Electro-Muscular Incapacitation (LR-HEMI) projects, and current and future financial challenges. The JIPT approved the cancellation of the OWDS project, determining that the USMC's Optical Interruption project and the U.S. Navy's Unambiguous Warning Device project could meet the OWDS operational requirements. The JIPT also approved a one-year delay of the LR-HEMI project, allowing time for the Services to refine operational requirements and for related technologies to develop and mature.

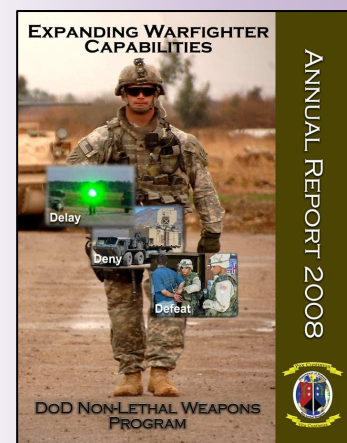
The next JIPT meeting is scheduled for May 19 at the Pentagon.

—BY JENNIFER BOWEN

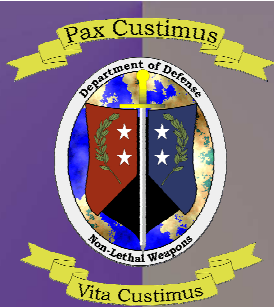
2008 Annual Report Available

The Department of Defense (DoD) Non-Lethal Weapons Program Annual Report 2008 is now available online on the Joint Non-Lethal Weapons Program website. The 26-page report features the year's highlights and milestones in non-lethal weapons (NLWs) from around the globe. It details how the DoD Non-Lethal Weapons Program has been actively pursuing the development and fielding of non-lethal weapons to meet the needs of warfighters. The annual report discusses how NLWs have impacted the warfighter over the past year, NLW activities from each of the U.S. Combatant Commands, the latest developments in new and upcoming non-lethal technologies, the completion of the Joint Non-Lethal Effects Joint Capabilities Document, education milestones and more.

The DoD Non-Lethal Weapons Program Annual Report 2008 is widely distributed and serves as a basic reference document for those interested in the DoD's Non-Lethal Weapons Program. To download the 2008 Annual Report, visit https://www.jnlwp.com/public_affairs/annual_report.asp.



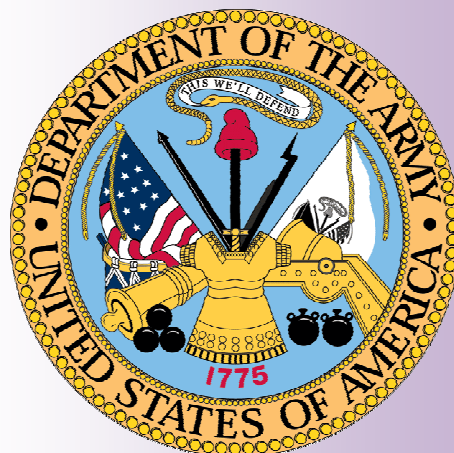
The DoD Non-Lethal
Weapons Program
Annual Report 2008



Army ICT Meets in Florida

Members of the U.S. Army Non-Lethal Weapons (NLW) Integrated Concept Team (ICT) met December 1-4, 2008, in Orlando, Florida.

The U.S. Army, U.S. Navy (USN), U.S. Air Force (USAF), U.S. Coast Guard and U.S. Special Operations Command each hold annual or semi-annual NLW ICT meetings. At these meetings, representatives from different organizations within that Service discuss NLW programs and technologies, identify NLW requirements and share their experiences using the weapons. In line with the Department of Defense (DoD) desire to have a joint NLW effort, representatives from the other Services and other DoD organizations can also attend the ICT meetings.



Army ICT meetings synchronize combat developer efforts that determine warfighter needs, capability gaps and possible solutions to fill those gaps. The meetings also synchronize materiel developer efforts to research, develop and procure equipment that ultimately meets warfighter needs, as well as training and education requirements.

“The Army ICT is an important part of the DoD’s Joint Non-Lethal Weapons Program,” said Kevin Swenson, Acquisition Division Chief for the Joint Non-Lethal Weapons Directorate (JNLWD) and a regular attendee at Army ICT meetings. “These meetings provide the Army’s voting principals with coordinated Service positions and priorities so they can communicate those positions and priorities at JNLWP meetings.”

About 55 people attended the December Army NLW ICT meeting. In addition to ICT members, attendees included representatives from the USAF, the USN, the U.S. Marine Corps (USMC), the JNLWD and others interested in Army NLW updates.

During the meeting, attendees reviewed efforts to integrate non-lethal capabilities within the Future Combat Systems, the Army’s technology and modernization development integration program. JNLWD representatives presented the latest information on NLW human effects and the Joint Non-Lethal Effects Capabilities-Based Assessment (CBA). According to Ross Miller, the Army’s NLW Program Support Officer, efforts such as the CBA and follow-on initial capabilities documents will significantly improve the Army’s ability to provide future non-lethal capabilities for soldiers in the field.

The Army ICT also reviewed the USMC’s approach to developing NLWs, specifically the Mission Payload Module and Ocular Interruption projects, in an effort to eliminate duplication among the Services. Additionally, the ICT made initial coordination efforts to consolidate management of non-lethal requirements documents at the Army’s Maneuver Support Center.

The next Army NLW ICT meeting is scheduled for June 16-17 at Fort Leonard Wood, Mo.

—BY JENNIFER BOWEN



Study Tests Active Denial Technology in Vehicle Stopping Applications

Active Denial Technology (ADT) has the potential to provide warfighters with a critical new non-lethal capability to help them safely deter suspicious individuals at extended ranges. The Active Denial System (ADS) uses ADT to project a focused beam of millimeter waves to induce an intolerable heating sensation on an adversary's skin, repelling the individual with minimal risk of injury. More than a decade of research has given the Department of Defense a thorough understanding of the ADS' repel effect and safety when targeting stationary individuals.



The Active Denial System
Official DoD Photo

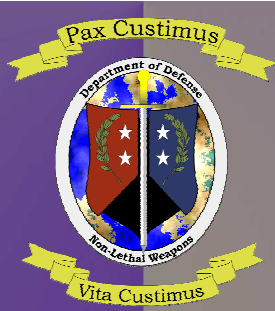
As the technology continues to develop, one ADT research effort is now focusing on the behavioral reactions of individuals driving vehicles targeted by the ADS millimeter-wave beam. One of the highest-priority capability gaps the Joint Non-Lethal Weapons Program (JNLWP) has identified is the ability for warfighters to determine the intent of vehicle drivers approaching a checkpoint and to non-lethally stop suspicious vehicles at safe distances. This ADT research effort will help determine whether the technology has vehicle stopping applications.

"Every day, our warfighters confront situations where they have only seconds to determine whether an approaching vehicle is carrying friendly or hostile passengers," said Colonel Kirk Hymes, Director of the Joint Non-Lethal Weapons Directorate (JNLWD). "The JNLWP is working to develop non-lethal technologies that will enable warfighters to stop those vehicles at a distance where they present less of a threat to those manning the checkpoint and pose a minimal risk to the vehicle's passengers."

To this end, the JNLWP and the Air Force Research Laboratory conducted an ADS Vehicle Driver Behavior Study at Eglin Air Force Base, Fla., in early November 2008. The series of experiments aimed to understand a driver's reaction when targeted by the ADS beam, the ability of the operators to determine the driver's intent and the ADS dosage necessary to safely cause the desired repel effect through a windshield.

According to Rick Scott, Project Engineer at the JNLWD, initial results of the study show that the ADS causes drivers to alter their behavior, indicating that ADT holds promise for vehicle stopping applications. Additional testing will continue throughout fiscal years 2009 and 2010, including driving simulators and real vehicles in mock checkpoint scenarios.

—BY NANCY KOREEN



People & Places

Eglin Air Force Base and the ADS Bridge Program

Since the mid-1930s, Eglin Air Force Base (AFB) has occupied more than 1,500 acres of Florida's western panhandle. Home to the U.S. Air Force (USAF) Air Armament Center (AAC), Eglin AFB plays an important role in the Department of Defense (DoD) Non-Lethal Weapons Program: The AAC's 687th Armament Systems Squadron manages the Active Denial System (ADS) Bridge Program. The purpose of the ADS Bridge Program is to help establish the ADS as a Service-led acquisition program. The ADS is a developmental directed-energy, non-lethal weapon that projects a focused beam of millimeter waves to induce an intolerable heating sensation on an adversary's skin, repelling the individual with minimal risk of injury.

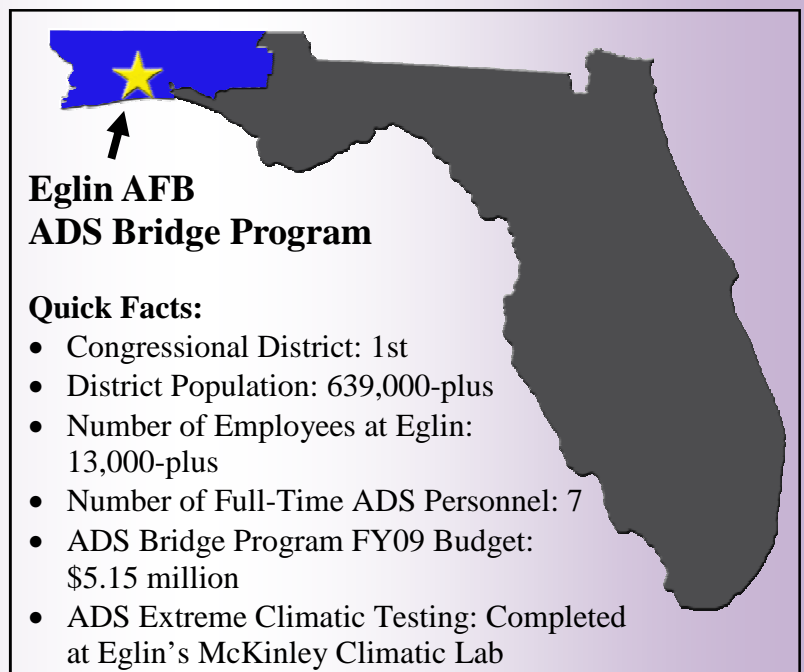
Assistant Secretary of the Air Force for Acquisition Sue Payton moved the ADS Bridge Program to Eglin in September 2007 as part of the effort to make Eglin the home to the USAF Center of Excellence for Directed Energy. Ken Yates, Flight Chief for Directed Energy at Eglin, serves as the Program Manager for the ADS Bridge Program, and Captain Christopher Zilka, USAF, is the Deputy Program Manager. The Joint Non-Lethal Weapons Program funds the program, which has a fiscal year 2009 budget of \$5.15 million.

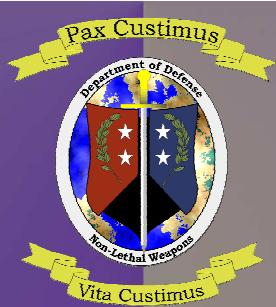
The ADS has the potential to provide a tremendous new capability for U.S. forces in support of today's complex missions. "We've got a huge gap between having to use lethal force or hoping our troops don't get injured because they don't want to employ lethal force if it's not appropriate," said Yates. "The ADS is a non-lethal application that our troops can use to determine the intent of individuals in a crowd. Troops can then employ appropriate means to handle those individuals."

Since moving to Eglin, the ADS Bridge Program has achieved several noteworthy accomplishments. The team tested the ADS in extreme hot and cold temperatures at Eglin's McKinley Climatic Lab, which simulates climatic conditions from around the world. In addition, ADS System 2, the militarized, transportable version of the ADS, completed all government acceptance testing. In the spring of 2008, the team finalized the Capabilities and Limitations Assessment, which determined that System 2 was operationally suitable for deployment.

According to Capt. Zilka, the team's efforts are now focusing on preparing the necessary documents for the ADS program to reach Milestone B, the engineering and manufacturing development phase of the acquisition process. In addition, the team is leading the effort to have the ADS included in the Program Objective Memorandum (POM) for fiscal year 2012, making it an official DoD acquisition program. The ADS Bridge Program is also conducting additional

studies on the prime power source for the ADS, as well as research to make the system smaller and lighter and to move it onto a smaller mobile platform. —BY NANCY KOREEN





JNLWD and Coast Guard Demonstrate Boat Trap

In early December, the U.S. Coast Guard (USCG) and the Joint Non-Lethal Weapons Directorate (JNLWD) conducted a demonstration of a developmental non-lethal weapon (NLW) designed to stop suspicious small boats. The project, called the Boat Trap Aerial Entanglement System, involves dropping an entangling net from a helicopter into the path of a target boat. The net entangles in the boat's propellers, forcing the vessel to a safe stop. The Joint Non-Lethal Weapons Program is funding the Boat Trap project, with the USCG as the lead Service.



A helicopter drops the Boat Trap in the path of a small vessel during the demonstration.

JNLWD photo by Darrel Webb

According to Darrel Webb, Maritime Project Engineer at the JNLWD, potential applications of the Boat Trap device include port security, protecting large vessels by reducing vulnerability to terrorists' use of speed boats, and drug interdiction activities. A representative from the Drug Enforcement Agency attended the demonstration and expressed interest in the Boat Trap and other NLWs.

"Non-compliant small boat threats have elevated the importance of less-than-lethal technology to stop non-compliant vessels," said Commander Eric Riepe, the Policy Division Chief for the USCG Office of Law Enforcement. "Currently, the Boat Trap appears to have potential in stopping non-compliant vessels while executing Coast Guard law-enforcement missions."

The USCG held the Boat Trap demonstration at Marathon Coast Guard Station in Marathon, Fla., December 2-4, 2008, with several USCG and JNLWD representatives in attendance.



The Boat Trap ready for use.

JNLWD photo by Darrel Webb

The demonstration included a series of four drops of the Boat Trap from a helicopter into the path of a 33-foot Eduardono Go-Fast boat with twin 200-horsepower Yamaha outboard engines traveling at 30-40 knots. The demonstration mimicked real-life scenarios where the helicopter has no communication with the boat and the operator must successfully time the drop in the right spot and from the correct altitude. During the demonstration, the Boat Trap's net successfully entangled the boat's propellers and halted the vessel.

The JNLWD is now working with the manufacturer of the Boat Trap device to develop the documentation and drawings required to move the project to the engineering and manufacturing development phase of the acquisition process, a Milestone B decision.

—BY NANCY KOREEN



JNLWD Wins Gingerbread House Contest

Members of the Joint Non-Lethal Weapons Directorate (JNLWD) showed their creativity at the annual holiday party for Plans, Policies and Operations (PP&O) at Headquarters U.S. Marine Corps. Their portrayal of “Safeguarding Christmas,” which included a winter holiday scene and an array of miniature edible non-lethal weapons in action, won first prize in the gingerbread house contest at the PP&O party.

Alicia Owsiak, JNLWD Assistant Technology Division Chief, led the effort, which included more than 40 hours of volunteer work. Other JNLWD Technology Division staff, including Carlton Land, Mary Williams and Bruce Wright, as well as Owsiak’s husband, Alex, contributed to the gingerbread house design and construction.

The edible creation portrays Scrooge driving through a series of non-lethal barriers on his way to Santa’s Workshop, Santa zapping the Grinch with a TASER® on the roof of the workshop, the Active Denial System aboard a reindeer-pulled sleigh, a green laser optical distracter emanating from Rudolph’s nose and many more intricate details.



Alicia Owsiak (center) accepts the first-place prize for the JNLWD’s gingerbread creation, “Safeguarding Christmas,” from Lieutenant General Joseph Dunford’s wife, Ellyn, and Brigadier General Ronald J. Johnson, during the PP&O holiday party.

JNLWD photo by Carlton Land

“I thoroughly enjoyed building this one-of-a-kind gingerbread house,” said Owsiak. “It was a great outlet for creativity and a fun, unique, new way to present non-lethal technologies. I’m proud of our finished result.”

—BY NANCY KOREEN

Hail & Farewell

Farewell to:

Col Thomas Ball, USAF
Joint Coordination and Integration Group
U.S. Air Force Voting Principal

Carlton Land
Project Engineer
Joint Non-Lethal Weapons Directorate

Hail to:

Col Patrick Lopardi, USAF
Joint Coordination and Integration Group
U.S. Air Force Voting Principal

Anthony Lewis
U.S. Africa Command Liaison Officer
Joint Non-Lethal Weapons Directorate

Brian Long
U.S. Navy Requirements Program Support Officer
Joint Non-Lethal Weapons Directorate